

ANALYSIS OF DATA FROM THE ENERGETIC GAMMA-RAY  
EXPERIMENT ON THE GAMMA RAY OBSERVATORY

NASA GRANT # NAG 5 1742

Final Technical Report

August 15, 1996

Principal Investigator

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**FINAL TECHNICAL REPORT**

**(1) SUMMARY**

The work under the Grant has involved participation with the Compton Gamma Ray Observatory Energetic Gamma-Ray Experiment Telescope (EGRET) Team in the analysis of data obtained during instrument operations and the preparation of scientific papers and proposals for future observations. The Principal Investigator (PI) has been a co-author on a total of 90 papers published in refereed professional journals since the beginning of 1991, plus many other non-refereed publications, and contributed and invited papers at professional meetings and IAU telegrams. On seven of these papers he was the lead author. The EGRET team continues to submit IAU Astronomical telegrams and present many papers at scientific meetings.

The effort by the PI has involved working remotely by internet connection on the Goddard Space Flight Center Computers where the EGRET data are archived. Students have monitored instrument performance, performed Viewing Period Analyses and analyzed data remotely. The PI has completed the detailed analysis of over 20 viewing periods to search for point sources and this work has been used in developing the first and second EGRET catalog of sources, published in Supplements to the **Astrophysical Journal**.

The PI was the lead author on several papers which have appeared in the **Astrophysical Journal**.

**(2) ACTIVITIES**

Major efforts under this grant are given below:

- (a) The PI participated in the preparation of 90 papers for publication in various journals for astronomy and astrophysics.
- (b) PI prepared several proposals with other members of the EGRET Team for data to support studies on a number of topics including the active galactic nuclei, diffuse gamma radiation, pulsars, correlated studies of unidentified objects and many others.
- (c) The PI analyzed several viewing periods using the standard viewing period analysis procedures as part of a program to provide a routine monitoring of the standard list of EGRET sources. This analysis also served as a means of tracking the performance of the instrument.
- (d) The PI presented both invited and contributed papers to 17 scientific meetings based on EGRET work and in collaboration with other members of the EGRET Team.
- (d) The PI attended EGRET Team Meetings as possible, consistent with teaching responsibilities, to discuss policy issues and worked closely with the rest of the EGRET Team on data analysis.

### (3) PUBLICATIONS

The following are articles co-authored by the PI which are related to this work and which have appeared in refereed journals since the inception of this Grant.

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1992 "Detection of High Energy Gamma-Ray Emission from the BL Lac Object MKN421 by the EGRET Telescope on the Compton Observatory," Y.C. Lin, D.L. Bertsch, J. Chiang, C.E. Fichtel, R.C. Hartman, S.D. Hunter, G. Kanbach, D.A. Kniffen, P.W. Kwok, J.R. Mattox, H.A. Mayer-Hasselwander, P.F. Michelson, C. von Montigny, P.L. Nolan, K. Pinkau, H. Rothermel, E. Schneid, P. Sreekumar, and D.J. Thompson, *Astrophys. J.* **401**, L61.

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#### (4) PLANNED ACTIVITIES

The work of the PI in conjunction with the EGRET Team will continue under NASA Cooperative Agreement NCC5-93.